



Montana
Office of Public Instruction
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**Montana Fish,
Wildlife & Parks**

Indian Education for All Units related to Montana State Parks

Makoshika State Park

January 2010 (revised)

Title

Dinosaur Trails and Dinosaur Tales

Content Areas

Science; Social Studies; Literature; Art

Grade Level

2nd-4th (could be simplified for K-1st grades)

Duration

2 50-minute class periods, 1 homework assignment, *and* 2-3 periods for related Dinosaur Trunk lessons. (*Can be done without the Dinosaur Trunk lessons, but is intended to be used in conjunction with a hands-on dinosaur lesson.*)

Montana Education Standards and Benchmarks

Indian Education for All

Essential Understanding 1: There is great diversity among the 12 tribal Nations of Montana in their languages, cultures, histories and governments. Each Nation has a distinct and unique cultural heritage that contributes to modern Montana.

Essential Understanding 3, part 2: Each tribe has its own oral histories which are as valid as written histories. These histories pre-date the “discovery” of North America.

Essential Understanding 6: History is most often related through the subjective experience of the teller. With the inclusion of more and varied voices, histories are being rediscovered and revised. History told from an Indian perspective frequently conflicts with the stories mainstream historians tell.

Montana Content Standards and Benchmarks

Social Studies Content Standard 3: Students apply geographic knowledge and skills (e.g., location, place, human/environment interactions, movement and regions). *Rationale: Students gain geographical perspective on Montana and the world by studying how people interact with places. Knowledge of geography helps students address cultural, economic, social and civic implications of living in various environments.*

Benchmark 3.2 Students will locate on a map or globe physical features, natural features, and human features.

Benchmark 3.7 Students will describe and compare the ways in which people in different regions of the world interact with their physical environments.

Social Studies Content Standard 4: Students demonstrate an understanding of the effects of time, continuity, and change on historical and future perspectives and relationships. *Rationale: Students need to understand their historical roots and how events shape the past, present and future of the world. In developing these insights, students must know what life was like in the past and how things change and develop over time. Students gain historical understanding through inquiry of history by researching and interpreting historical events affecting personal, local, tribal, Montana, U.S. and world history.*

Benchmark 4.1 Students will identify and use various sources of information (e.g., artifacts, diaries, photographs, biographies, paintings, architecture, songs) to develop an understanding of the past.

Benchmark 4.6 Students will recognize that people view and report historical events differently.

Benchmark 4.7 Students will explain the histories, cultures and current status of American Indian tribes in Montana and the United States.

Art Content Standard 3: Students develop and refine arts skills and techniques to express ideas, pose and solve problems, and discover meaning. *Rationale: Artistic expression is a critical form of self-expression and communication requiring specific skills, knowledge and techniques.*

Benchmark 3.1 Students will use art materials, techniques, technologies and processes to create general responses.

Benchmark 3.2 Students will communicate meaning through the art forms from selected subject matter.

Science Content Standard 4: Students demonstrate knowledge of the composition, structures, processes and interactions of Earth's systems and other objects in space. *Rationale: By studying Earth, its composition, history and the processes that shape it, students gain a better understanding of the planet on which they live.*

Benchmark 4.3 Students will investigate fossils and make inferences about the life, plants, animals, and the environment at that time.

Literature Content Standard 4: Students interact with print and not-print literary works from various cultures, ethnic groups, [and] traditional and contemporary viewpoints written by both genders. *Rationale: Through the ages, literature has mirrored the sensibilities of the people who have produced these works. Students engaging in a variety of works come to understand that...individuals view events in a variety of way based upon their own frames of reference, beliefs and experiences. [Note: As do different cultures.]*

Benchmark 1.1 Students will select, read, listen to and view a variety of literary works.

Benchmark 1.2 Students will respond to traditional and contemporary works representing diverse perspectives, cultures and issues (e.g., American Indian works).

Benchmark 1.3 Students will create and share responses to literary works through the applications of technology, speaking, writing, and/or visual or performing arts.

Overview and Objectives

Makoshika State Park (Montana's largest state park) is located just south of Glendive, Montana. The name, Makoshika, comes from the Lakota term for earth—"Maká" (ma-KAH)—and either the word "sícha" (SEE-chah) meaning "bad" or "ooshika" (OO-shee-kah) meaning "poor" or "pitiful."

These ancient badlands are part of what has been called the "Montana Dinosaur Trail" because of the amazing number and diversity of dinosaur and other fossilized creatures found throughout this region (eastern Montana, western Dakotas, northern Wyoming). This lesson introduces students to some of the paleontology of Montana, including some of the kinds of dinosaur and pterosaur remains found in Montana. In addition to learning about dinosaurs from a scientific perspective, students will discover that many tribes of this region discovered dinosaur and pterosaur remains throughout the "badlands" thousands of years before they were observed by Lewis and Clark (the first Americans to observe them).

Not all tribal histories concur with the theories and findings of paleontologists and historians. For instance, several tribes have stories that describe *living* dinosaur-like creatures from an era that paleontologists believe to

be many millions of years old—stories that can support scientific theories and findings or challenge them, depending on how they are interpreted. What is known, is that tribes have occupied this region for over 15,000 years and that tribal histories include knowledge of a variety of geological events and episodes in the earth's history, including the "Age of the Dinosaurs."

Indigenous inhabitants of this area include bands of Lakota, Hidatsa, Mandan, Dakota, Cheyenne, Crow and Assiniboiné (Nakoda/Nakona). Some of these tribes have oral histories which tell about "serpent monsters" and "Thunderbirds," and these stories suggest tribal knowledge of dinosaurs and pterosaurs long before paleontologists began their studies in the West.

"What you people call fossils; these too are used by us. Deep in the Badlands we find the bones of the water monster which lived long before human beings appeared." (Lame Deer, a Lakota, to Richard Erdoes, 1969.)

This lesson includes hands-on science components, vocabulary, and tribal literature. Students will learn about dinosaurs from multiple cultural perspectives, linking tribal oral histories and oral stories to non-tribal scientific observations and information. Ideally, the two class periods of this lesson will lead into using the Dinosaur Trunk curricula (listed below) for a more comprehensive unit on paleontology and dinosaurs in Montana.

Materials or Resources Needed

Map showing locations of dinosaur finds in Montana, including Makoshika State Park. See the Montana Dinosaur Trail online at <http://www.mtdinotrail.org/>

Descriptions of Makoshika State Park, online:

<http://www.makoshika.org> (see "history" link also, at <http://www.makoshika.org/history.htm>)
http://fwp.mt.gov/lands/site_283890.aspx (FWP intro to Makoshika state park. This website has several photographs of the park's "badland" landscape and rock formations. You can share these with your students.)

Websites:

Wikipedia entry for Unktehi or "Horned Serpent" http://en.wikipedia.org/wiki/Horned_Serpent

Wikipedia entry for Pterosaur <http://en.wikipedia.org/wiki/Pterosaur>

Wikipedia entry for Thunderbird: <http://en.wikipedia.org/wiki/Thunderbird>

Lame Deer's story of Unktehi: http://www.indianlegend.com/lakota/lakota_001.htm (This is a version of the Lakota Creation Myth.)

Fossil Legends of the First Americans (book) by Adrienne Mayor, Princeton University Press, 2005. In this book, you will need the account of Lame Deer's find of a dinosaur skeleton, from pages 220-224 of Chapter 5. (Hardcopy is readily available from online booksellers, used, for less than the price of the newer paperback edition.)

Brave Wolf and the Thunderbird (book) by Joe Medicine Crow, Tales of the People series, Smithsonian Institute's National Museum of the American Indian, Abbeville Press (Publishers), 1998. (This book may be available from OPI and at your school library. If not, it can be ordered from Oyate at 510-848-6700.) This is a retelling of an Apsáalooke legend by an elder of the Apsáalooke (Crow) tribe. *This book is also included in the FWP lesson on Pictograph Caves. If you are doing both of these lessons, you may substitute another Crow story for this book in the Pictograph Caves lesson. For suggestions of other stories, please contact OPI's Indian Education staff at 404-444-0720.*

A Dinosaur Educational Trunk (You only need one, but two are listed in case either one is not available.)

Museum of the Rockies Dinosaur Trunk

Contains real dinosaur bones, casts and molds of bones, teeth and eggs along with the latest information about dinosaurs for use in the classroom. These materials, accompanied by resource books, a CD-ROM, videos and posters can be used to create activity stations in the classroom or support more teacher-directed activities. Grade level: 1st-7th grade.

Contact: Museum of the Rockies, Montana State University, Bozeman, MT 59717-0272; call (406) 994-5282. Cost: \$35 per week, plus shipping costs onto the next school.

Makoshika State Park Dinosaur Trunk:

This trunk provides activities and lesson plans pertaining to dinosaurs in Montana, especially those in the Glendive/Makoshika State Park area. Included are posters, bones, and videos. It is geared toward younger students, although older students may be able to use some of the contents. Because the trunk is very large and may be costly to ship, it is recommended that a number of schools or organizations in an area arrange to share the trunk for a few weeks, transporting it from one place to another as needed. Grade levels: geared mainly towards K-6.

Contact: Ryan Sokoloski, Makoshika State Park, Box 1242, Glendive, MT 59330, (406) 377-6256. Cost: Shipping

Optional resource: *Dreamkeeper (DVD)* This DVD is a series of dramatizations of tribal stories and oral histories. You will only be using one section from it, “The Giant Serpent,” which depicts the Lakota story of Unktehi, the Water Monster. Please preview it before showing your class and determine if it is age-appropriate for your students. Younger kids might find the imagery too scary, but 3rd and 4th graders will probably not.

Activities and Procedures

Teacher Preparation: Reserve and order the dinosaur trunk in advance, to make sure it is available when you need it. (You might consider sharing it with another class/teacher so that other students in your school can use it while it is at your school.) Teacher should preview the section of the DVD that is suggested for this class period to determine if it is suitable for your students. Younger students might find it too scary. Download and print the materials from the websites so they are readily accessible for use in class.

Class Period 1: Makoshika State Park and Lakota Thunderbird Stories

1. Introduce your class to Makoshika State Park by locating it on a Montana state map or on the Montana Dinosaur Trail map. Help them learn how to pronounce it’s name, Mah-KO-shi-kuh, and explain the Lakota (and Dakota) origins of the name as described in the Overview to this lesson and defined/pronounced on Attachment A. You will want to mention that several tribes (listed in the Overview) have inhabited eastern Montana, some for thousands of years, others for a few hundred years, and that these tribes today have reservations in Montana, South Dakota, North Dakota and Wyoming. (5-7 minutes)
2. Using the information from the Makoshika Park websites listed above; describe the aspects of Makoshika State Park that we will be talking about in this lesson, such as: the age of the rocks/earth at Makoshika, the kinds of dinosaur and pterosaur skeletal remains found there, that Makoshika is part of the “Montana Dinosaur Trail.” Show your students the photos from the Fish, Wildlife and Parks’ Makoshika website. (about 8 minutes)
3. Inform your students that:
*Thousands of years before Lewis and Clark first came across a dinosaur skeleton near the Missouri River, and long before **paleontologists** studied dinosaurs, the **indigenous** inhabitants of this region had their own histories and stories about dinosaurs and other ancient creatures.*

4. Introduce the vocabulary words: **indigenous, oral history, legend, paleontology, and paleontologist** on Attachment A, and help them pronounce each word. (5 minutes)
5. Introduce the Lakota/Dakota word **Unktehi** and help students pronounce it. Also, these words **Tunkasila** and **Wakinyan** which will be in the story. Explain to your class that the story they are about to hear is an oral history—the Creation story of the Lakota people—and is not considered, by the Lakota, to be a myth or a legend. (5 minutes)
6. Read Lame Deer’s version of the Lakota Creation Story which includes Thunderbird’s fight with Unktehi . (7-8 minutes)
7. Ask your students to respond to the story: What about it might make a person hearing it today think of dinosaurs? If Unktehi were a dinosaur, what kind might he be? What about Thunderbird? (Some people speculate that the Thunderbird could have been a pterosaur. You can show your students a picture of the pterosaur, but make sure that they know that this only might be the being the Lakota were referring to in their story.) (5 minutes)
8. Tell your class that Lame Deer was a Lakota man, born in 1902, who shared his own and his tribe’s stories about dinosaurs and Unktehi to a writer (Richard Erdoes) when he was an old man. Read the account of Lame Deer finding the dinosaur remains when he was young. (10 minutes)
9. To demonstrate their comprehension and interpretation of the stories, students will have an art assignment for homework. Students should create an illustration (2-D or 3-D) for *either* the Lakota creation story or Lame Deer’s own account of finding a dinosaur. Along the bottom of his or her illustration, each student should write one sentence describing the event they are illustrating, such as “Lame Deer finds a dinosaur serpent skeleton in the badlands.” Encourage your students to be detailed in their illustrations and creative with the media they choose to make the illustrations. (<5 minutes to explain)

Class Period 2: An Apsáalooke Thunderbird Story and Learning about Dinosaurs

For this period you will need the Dinosaur Trunk and Joe Medicine Crow’s Story, Brave Wolf and the Thunderbird.

1. Introduce your class to the Apsáalooke (Crow) tribe. (If you need more information, see the final pages at the end of Brave Wolf and Thunderbird, which give a brief overview of the tribe.) Explain that the Crow Reservation is in south-central Montana, but once the Crow lived throughout most of central and southern Montana, from the headwaters of the Missouri to the eastern edge of Montana and as far north as the Missouri and Musselshell rivers. You might also tell them who Joe Medicine Crow is (see back of book) and let them know that the story they are about to hear is part of the Crow oral tradition and has been around for a very long time. (5 minutes)
2. Teach your class the Apsáalooke words **Sua’dagagy** and **Buruksám wurukcé**. (2 minutes)
3. Read *Brave Wolf and Thunderbird* to your class. (10 minutes)
4. Remind students what it means to compare and contrast. Have them write a paragraph comparing the Lakota Creation Story to Brave Wolf and Thunderbird and one paragraph contrasting these stories. They should describe specific details in the stories, such as characters, events/occurrences, etc., that are alike or different. If your students are not yet ready to write in paragraphs, have them list the similarities and differences. (15 minutes)

5. If you are using the DVD *Dreamkeeper*, show your students the section called “The Giant Serpent.” If not, move on to activity 6.

6. Begin your exploration of the Dinosaur Trunk materials. How you use these will be up to you. Ideally, your class could spend two days on the cultural materials in this lesson and then transition to the Dinosaur Trunk materials for three days or the remainder of the week.

Assessment

Listening, Vocabulary, Participation, Artistic and Written responses.

Attachments

Attachment A—Vocabulary List

Attachment A—Vocabulary List for sharing with students

Indigenous: (Adjective) Originating at a particular place. Indigenous peoples are the original inhabitants or descendents of the original inhabitants of a particular place. Opposite: Immigrants. In the United States, American Indians are the indigenous people who inhabited (lived in) this land.

Oral History: An oral history is a historical account that is passed down from one generation to another through stories and legends. Tribes of Montana and the United States have oral histories that go back hundreds, sometimes even thousands, of years. Oral histories contain much of the cultural knowledge of a tribe. They are similar to written histories in that they detail the lives and events in the people's history.

Legend: A legend is a well-story that has been around for a long time. Most legends are based on actual events, although this cannot always be proven. Each tribe has its own legends, which are part of that tribe's oral tradition, just as each non-tribal culture has its own legends.

Paleontology: the study of the ancient history of the earth's living creatures, including dinosaurs.

Paleontologist: A scientist who studies life-forms from the earth's ancient past.

Makoshika (ma-KO-shee-kah): "badlands" or "pitiful earth" meaning there was little or no vegetation and few animals. (From Lakota, Dakota, Nakoda—these are interrelated Sioux tribal groups.)

Maká (ma-KAH): earth (Lakota)

Sícha (SEE-chah): bad (Lakota)

Unsica (OO-she-kuh): poor or pitiful; having nothing. (Lakota)

Unktehi (oonk-TEKH-hee): Water Monster or Serpent. (Lakota)

Tunkasila (toon-KA-shee-la): Grandfather. Refers to the Creator. (Lakota)

Wakinyan (wa-KEE-yah) "Sacred Flying ones" (Lakota). Refers to the Thunderbirds. Is also used to refer to thunder and lightning (together).

Sua'dagagy: Thunderbird. (Apsáalooke)

Buruksám wurukcé: Water Monster (Apsáalooke)